III. REMARKS

In the Office Action, claims 1, 2, 4, 6-8, 12, 14, 15, 17, 19 and 20 were rejected under 35 U.S.C. 102 as being anticipated by Bush (US 6,397,186), claim 9 was rejected under 35 U.S.C. 103 as being unpatentable over Bush in view of Osawa (GB 2 275 800 A), and claims 3, 5, 10, 11, 13, 16, 18 and 21 were rejected under 35 U.S.C. 103 as being unpatentable over Bush in view of Houser (US 5,774,859) for reasons set forth in the Action.

The independent claims 1, 10, 12 and 14 are amended to distinguish the present claims from the teachings of the cited art, thereby to overcome the foregoing rejections, and to provide allowable subject matter in the claims as is explained in the following argument.

The subject matter of the amendment provides that, in case of ambiguity of the control information, the user is signaled to enter further control information relating to a selection of possible applications to which the ambiguous control information can be applied until the totality of inputted control information is unambiguous. The subject matter of the amendment is supported by the present specification in sections [0032] and [0039]. The section numbers are in reference to the application as published.

Bush is the primary reference used in the rejection of the claims. Bush teaches substantially two techniques for enabling speech control. The first one is based on a speaker independent vocabulary, whereas the second one is based on a speaker dependent vocabulary.

In Bush, the speaker independent vocabulary comprises several recognition vocabulary sets, which are hierarchically organized in accordance with a hierarchical structure of a graphical user interface. This means that upon user input of a sound (cf. S510 of Fig.

5), a (sound) pattern is generated and it is checked whether the generated pattern matches with one of the recognition vocabulary entries in the currently active recognition vocabulary set (cf. S513, S514 of Fig. 5). In case a match for the pattern is identified, a new recognition vocabulary set is selected (in accordance with the hierarchical structure thereof) or an infrared signal is initiated (in case the identified recognition vocabulary is the last one in the hierarchical structure) (cf. S518 of Fig. 5). Please refer for instance to col. 21 at line 17 to col. 22 at line 67 of Bush.

The speaker dependent vocabulary is designed as macro programs. The speaker dependent vocabulary is flat, which means that each vocabulary entry of the speaker dependent vocabulary has to be unambiguous. The entries of the speaker dependent vocabulary are trained by the speaker in that a control command is associated to each entry in the speaker dependent vocabulary. Upon input and identification of one entry in the speaker dependent vocabulary, the associated command is initiated (cf. for instance col. 5, lines 14 to 32 of Bush).

The teaching of Houser relates to a system for controlling a device, such as a television, and for controlling access to broadcast information such as video, audio, and/or text information. A remote control 166 provides spoken control of devices 162-1 to 162-n. The exemplary vocabulary set is shown in table I in col. 18; a supplementary command grammar specifies how the words of the vocabulary set may be used. For instance, the user may utter "POWER ON", such that upon recognition of this command, a television set (162-2) is switched on, or the user may utter "POWER OFF" such that the television set is switched off (cf. col. 19, line 61 to col. 20, line 9). Likewise, the user may utter "GOTO CHANNEL NUMBER", where NUMBER is a user spoken number such that television set is tuned to the corresponding spoken channel number (cf. col. 20, line 62 to col. 21, line 5).

Houser further suggests a handling of misrecognition, which is performed when the user uttered (spoken) input cannot be identified at the required likelihood level. Herein,

misrecognition means that two recognition options have comparable likelihoods, which means that the speech recognition software cannot identify which command of a plurality of possible commands is actually intended by the user uttered (spoken) input. In col. 19, lines 37 to 52, this error handling is described on the basis of the user uttered command "GOTO CHANNEL SIXTEEN", which can be confused by the speech recognition software with the command "GOTO CHANNEL SIXTY". In such a case, the more commonly spoken command may be implemented.

In the rejections of the claims, the Examiner maintains his opinion that the teaching of Bush anticipates the checking of whether the speech input by the user is known, unambiguous, and complete. The Examiner refers to the speaker dependent macro programming (Bush, col. 5, lines 14 to 32) where Bush teaches that, in response to a user-trained voice command "Sports", commands are issued to a TV to turn to channel 123. To enable this response, the Examiner alleges that it is checked whether "Sports" is known and recognized to be unambiguous. Further it is checked whether all necessary elements are present for the TV application device to interpret such an instruction to turn to (pre-defined) channel 123.

The foregoing argumentation is presented by the Examiner with reference to independent claims 1 (relating to a method), 12 (relating to a system), and 14 (relating to an interface).

In the rejection of dependent claim 3, the examiner (page 6 of the Office Action at lines 3-5) states that Bush does not disclose that possibilities of interpretation are signaled back, and the examiner relies on Houser to disclose this subject matter. However, in the rejection of claim 2, the examiner (page 3 at lines 5-8) refers to the signaling back of control information, and cites a passage of Bush disclosing this subject matter. The feature of "signaling back" is found in claims 2, 3, 15 and 16.

It is believed that, possibly, the Examiner does not consider thc different meanings of the terms "known", "unambiguous", and "complete", which should be understood in the context of the description of thc application (cf. in particular sections [0032] to [0034] of the specification).

With respect to the use of terminology in the claims, it is understood from present Fig. 3 that "known" (operation S16) concerns subject matter such as a "misrecognized" input discussed by Houser. This means that in case of an "unknown" input the user input should be repeated by returning to the input operation S11. The correspondence of the term "known" and "misrecognition" can be made out from the substantially same operational sequence, which suggests dismissing the first "misrecognized" input, and processing the new input uttered by the user. Attention may be drawn also to the example given in paragraph [0038] of the present specification, where the handling of misrecognition is described as being performed by the operations S13 and S14.

Further, an input is "ambiguous" in case the known input can be executed in a number of applications or is associated with a number of functions in an application. In this case, further specification is required, which is stipulated by user enquiry of the possibilities indicated (cf. operation S19). Hence, the input (operation Sll), which is required from the user is "aggregated" or "composed" upon the previous "ambiguous" input. Each of the inputs to be aggregated has to be known to the speech recognition because the operations S15 and S16 are processed independently for each user uttered input. This interpretation of the term "ambiguous" is also supported by the example given in paragraph [0039] of the specification. Further, with reference to paragraph [0039], an input is "ambiguous" if this input can be associated with control instructions concerning different applications.

Moreover, an input is "incomplete" (not "complete") when further information is required in order to execute the instruction. This means that although the input of the user is known and unambiguous, such that one function of one application can be

identified, further user input is required for allowing a performing of the function of the application. Similar to an "ambiguous" input, the further information is again "aggregated" or "composed" upon the previous input(s). A corresponding embodiment thereof is described in paragraph [0041] of the specification.

The present amendment is based on the operational sequence, which is performed if the input is "ambiguous", in that the speech recognition system according to the present invention is able to identify the possible applications, which can be instructed to operate in accordance with a known user uttered input.

With respect to the teachings of Bush, there is description of user-independent vocabulary by which the user may verbally navigate among different types of remote control functions by means of multiple linked recognition vocabulary sets comprised by the user-independent vocabulary. This kind of navigation corresponds to navigating on the basis of a permanently predetermined menu structure, which kind of navigation is to be overcome by the present invention (cf. Bush, col. 4, lines 52 to 64). The terminology of entry words for the Bush system is established prior to operation of the system, and no provision is provided for deviation from the requisite use of terminology in the Bush system. The present invention is practiced without requiring the user to enter specific terms in a prescribed order by virtue of the feature of requesting clarification and/or further data from the user.

Bush further describes the aforementioned user-dependent vocabulary, which is generated by user training. The speaker dependent commands are part of the user-dependent vocabulary, and can be included into the vocabulary structure of the user-independent vocabulary described above. Further speaker dependent commands may be used for macro programs for multiple control signals to one or more appliances (applications) (cf. Bush, col. 5, lines 14 to 32).

However, Bush teaches that each speaker dependent command must have a user-trained speaker dependent voice pattern that differs at a pre-defined distance from a

previously generated one. Such a voice pattern is generated each time a voice command is spoken by a user to the speaker dependent command voice training routine (cf. Bush, col. 40, lines 33 to 35, and col. 41, lines 15 to 24). This means, speaker dependent commands have to be unambiguous.

The latter requirement, in Bush, that the speaker dependent commands have to be unambiguous (i.e. have to comprise differing user-trained speaker dependent voice patterns) is overcome by the present invention, in that an "intelligent" algorithm is suggested which allows a user to define speaker dependent commands having the same user-trained speaker dependent voice pattern. In case a user input is ambiguous, the user is interrogated for further speech input until an unambiguous sequence of independent user inputs is present.

The handling of misrecognitions, as taught by Houser, does not suggest such a user interrogation in response to an ambiguous user input.

New claim 22 is presented to amplify the description of the invention with respect to the matters of ambiguity and completeness of a user input. Support for subject matter in claim 22 is found in the present specification on page 6 at lines 31-39, and on page 7 at lines 2-10, for the matter of ambiguity, and on page 8 at lines 20-37 for the matter of completeness. Claim 22 distinguishes between the procedures followed upon a determination that the control information is adequate or not adequate, and clearly set forth the process of interrogation of the user in the case of inadequate control information by the step of "signaling the user to enter further data for resolving an unknown control information, an ambiguous control information, and/or an incomplete control information".

Implementation of the above-noted user-interrogation step in claim 22 is not taught nor suggested by the cited art, considered individually and in combination. Also, it is believed that there is no motivation presented in any of the cited references to combine

these references in an attempt to suggest the implementation of the user-interrogation step of claim 22.

In the rejection of claim 1, the examiner has made reference to passages in Bush (col. 5 at line 23-32; col. 22 at lines 42-47) for anticipation of the claimed subject matter relating to control information that is known, unambiguous and complete. The cited passage in col. 5 may serve as an example of control information meeting the desired criteria for adequacy of the control information, but says nothing about the procedures of the claimed subject matter of any of the present independent claims for handling a situation wherein the control information is not adequate because it is unknown, or ambiguous or incomplete. The cited passage in col. 22 deals with control information that is unknown because of speech recognition that is inadequate, but says nothing about what to do in the case wherein the wrong word was spoken by the user, or the terminology of the user produces ambiguity or incompleteness of the inputted control information. Since the claimed subject matter in each of the independent claims deals with procedures to be followed when properly recognized speech information, or data entered via a keyboard, may set forth control information that is unknown, or ambiguous or incomplete, there can be anticipation or suggestion of the present invention by Bush considered alone and even in combination with the teachings of the other references.

It is believed that the foregoing amendment should be sufficient to show the differences between the combined teachings of Bush and Houser compared to the present invention, in particular because the combined teachings of Bush and Houser cannot guide the user towards an unambiguous input in the manner accomplished by the present invention.
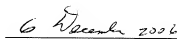
For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and

allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for the additional independent claim ($250.00) as well as any other fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

_____   _____
Joseph V. Gamberdell, Jr.   Date
Reg. No. 44,695

Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
(203) 259-1800
Customer No.: 2512

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted electronically, on the date indicated below, addressed to the Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: 6 December 2006   Signature: _____

_____
Person Making Deposit